

CLAIMS

~~What is Claimed is:~~

- 1 1. A method of admitting calls over a network, comprising:
2 receiving a call request capable of affecting a network resource, the call
3 request defining a throughput requirement;
4 transmitting a throughput measurement request for the network resource;
5 receiving a throughput measurement response including a throughput
6 measurement corresponding to the network resource; and
7 transmitting a call admission response when the throughput measurement
8 at least substantially matches the throughput requirement of the call request
- 1 2. The method of claim 1, further comprising selecting one or more network
2 resource as a resource candidate for use in the requested call.
- 1 3. The method of claim 1, wherein the selecting one or more network
2 resource is based on the call admission response.
- 1 4. The method of claim 1, wherein the selecting one or more network
2 resources is determined by usage policy of a policy server.
- 1 5. The method of claim 1, wherein the throughput requirement relates to a
2 perceptible quality of service.
- 1 6. The method of claim 1, wherein the throughput requirement is specified in
2 a packet header.

- 1 7. The method of claim 1, wherein the throughput requirement complies with
2 Resource Reservation Protocol (RSVP).
- 1 8. The method of claim 1, wherein the throughput requirement complies with
2 Diffserv Protocol.
- 1 9. The method of claim 1, wherein the throughput requirement complies with
2 MultiProtocol Label Switching (MPLS) Protocol.
- 1 10. The method of claim 1, wherein the call request complies with Session
Initiation Protocol.
- 1 11. The method of claim 1, further comprising ranking the network resource
according to a merit rating, the merit rating being based on the throughput measurement of the
network resource.
- 1 12. The method of claim 11, further comprising selecting resources according
to the merit rating.
- 1 13. The method of claim 1, further comprising monitoring usage of at least
one of the network resources.
- 1 14. The method of claim 1, wherein the throughput measurement request
comprises at least one trace packet.
- 1 15. The method of claim 1, wherein the throughput measurement request
comprises a trace route.
- 1 16. The method of claim 15, wherein the trace route comprises a list of
network resources.

1 17. The method of claim 16, further comprising the step of monitoring
2 the network resources in the list to maintain the throughput requirement.

1 18. The method of claim 1, further comprising selecting one or more sizes of a
2 data packet as candidates for carrying audio data in the requested call.

1 19. The method of claim 1, further comprising selecting an alternative
2 resource as the network resource when the throughput measurement does not substantially match
3 the throughput requirement of the call request.

1 20. The method of claim 19, wherein the alternative resource comprises a
2 switched telephone network.

1 21. The method of claim 19, wherein the alternative resource comprises a
2 dedicated communications link interconnecting network resources.

1 22. The method of claim 1, further comprising transmitting an alternative
2 resource call admission response when the throughput measurement does not substantially match
3 the throughput requirement of the call request.

1 23. The method of claim 1, further comprising determining a condition of the
2 network resource.

1 24. The method of claim 23, wherein the determining includes determining a
2 delay in the throughput measurement in the network.

1 25. The method of claim 23, wherein the determining includes determining a
2 percentage of packet loss in the network.

1 26. The method of claim 23, further comprising determining an expected
2 quality of service based on the determined condition of the network resource.

1 27. The method of claim 1, further comprising performing call admission
2 control to accept or deny the call request.

1 28. The method of claim 27, wherein performing call admission control is
2 based on usage of a link in the network.

1 29. The method of claim 27, wherein at least two terminals are defined in at
2 least two communities coupled by a link in the network, and wherein performing call admission
3 control includes performing call admission control based on a policy for the link between the
4 communities.

1 30. The method of claim 29, further comprising bypassing the call admission
2 control within at least one community.

1 31. The method of claim 1, wherein one of the call request, the throughput
2 measurement, the throughput measurement request, the throughput measurement response and
3 the call admission response is communicated over a data bus.

1 32. An apparatus for admitting calls over a network, comprising:
2 a receiver for receiving a call request capable of affecting a network
3 resource, the call request defining a throughput requirement;
4 a transmitter for transmitting a throughput measurement request for the
5 network resource;
6 a receiver for receiving a throughput measurement response including a
7 throughput measurement corresponding to the network resource, and
8 a transmitter for transmitting a call admission response when the

9 throughput measurement at least substantially matches the throughput requirement of the call
10 request.

1 33. The apparatus of claim 32, further comprising a selector to select one or
2 more network resource as a resource candidate for use in the requested call.

1 34. The apparatus of claim 33, wherein the selector is adapted to select one or
2 more network resource based on the call admission response.

1 35. The apparatus of claim 33, wherein the selector is adapted to select one or
2 more network resource based on a usage policy of a policy server.

1 36. The apparatus of claim 32, wherein the throughput requirement relates to a
2 perceptible quality of service.

1 37. The apparatus of claim 32, wherein the throughput requirement is
2 specified in a packet header.

1 38. The apparatus of claim 32, wherein the throughput requirement complies
2 with Resource Reservation Protocol (RSVP).

1 39. The apparatus of claim 32, wherein the throughput requirement complies
2 with Diffserv Protocol.

1 40. The apparatus of claim 32, wherein the throughput requirement complies
2 with MultiProtocol Label Switching (MPLS) Protocol.

1 41. The apparatus of claim 32, wherein the call request complies with Session
2 Initiation Protocol.

1 42. The apparatus of claim 32, further comprising a controller adapted to rank
2 the network resource according to a merit rating, the merit rating being based on the throughput
3 measurement of the network resource.

1 43. The apparatus of claim 42, further comprising a selector to select the
2 network resource according to the merit rating.

1 44. The apparatus of claim 32, further comprising a monitor for monitoring
2 usage of at least one network resource.

1 45. The apparatus of claim 32, wherein the throughput measurement request
2 comprises at least one trace packet.

1 46. The apparatus of claim 32, wherein the throughput measurement request
2 comprises a trace route.

1 47. The apparatus of claim 32, further comprising a selector for selecting one
2 or more sizes of a data packet as candidates for carrying audio data in the requested call.

1 48. The apparatus of claim 32, further comprising a selector for selecting an
2 alternative resource as the network resource when the throughput measurement does not
3 substantially match the throughput requirement of the call request.

1 49. The apparatus of claim 48, wherein the alternative resource comprises a
2 switched telephone network.

1 50. The apparatus of claim 48, wherein the alternative resource comprises a
2 dedicated communications link interconnecting network resources.

1 51. The apparatus of claim 32, further comprising a transmitter for
2 transmitting an alternative resource call admission response when the throughput measurement
3 does not substantially match the throughput requirement of the call request.

1 52. The apparatus of claim 32, further comprising a controller adapted to
2 determine a condition of the network resource.

1 53. The apparatus of claim 52, wherein the controller adapted to determine a
2 condition of the network resource is further adapted to determine a delay in the throughput
3 measurement.

1 54. The apparatus of claim 52, wherein the controller adapted to determine a
2 condition of the network resource is further adapted to determine a percentage of packet loss in
3 the network.

1 55. The apparatus of claim 52, wherein the controller adapted to determine a
2 condition of the network resource is further adapted to determine an expected quality of service
3 based on the determined condition of the network resource.

1 56. The apparatus of claim 32, further comprising a call admission control
2 device for accepting or denying the call request.

1 57. The apparatus of claim 56, wherein the call admission control device is
2 adapted to admit the call based on usage of a link in the network.

1 58. The apparatus of claim 56, wherein at least two terminals are defined in at
2 least two communities coupled by a link in the network, and wherein the call admission control
3 device performs call admission control based on a policy for the link between the communities.

1 59. The apparatus of claim 58, further comprising a bypass path for bypassing
2 the call admission control device within at least one community.

1 60. The apparatus of claim 32, wherein one of the call request, the throughput
2 measurement, the throughput measurement request, the throughput measurement response and
3 the call admission response is communicated over a data bus.

4 61. An article including one or more machine-readable storage media
5 containing instructions to manage calls within a telephony system, the instructions when
executed causing a controller to:

6 receive a call request capable of affecting a network resource, the call
7 request defining a throughput requirement;

8 transmit a throughput measurement request for the network resource;

9 receive a throughput measurement response including a throughput
10 measurement corresponding to the network resource; and
11

12 transmit a call admission response when the throughput measurement at
13 least substantially matches the throughput requirement of the call request.

1 62. A call establishment method comprising:

2 transmitting a call request capable of affecting a network resource, the call
3 request defining a throughput requirement;

4 receiving a throughput measurement request for the network resource;

5 transmitting a throughput measurement response including a throughput
6 measurement for the network resource; and

7 receiving a call admission response when the throughput measurement at
8 least substantially matches the throughput requirement of the call request

1 63. A call server comprising:
2 means for receiving a call request capable of affecting a network resource,
3 the call request defining a throughput requirement;
4 means for transmitting a throughput measurement request for the network
5 resource;
6 means for receiving a throughput measurement response including a
7 throughput measurement corresponding to the network resource; and
8 means for transmitting a call admission response when the throughput
9 measurement at least substantially matches the throughput requirement of the call request.